

Highlights

- **Customer Service**
- **Spotlight on Electronics**
- **Mechanical Highlights**



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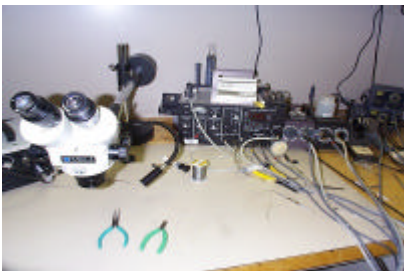
Engineering Services Group News

CUSTOMER SERVICE

ESG shops do their best for our customers to accommodate projects with the fastest turnaround possible. However, we are not always aware a specific account may be closing. Please be sure to inform the shop supervisor when submitting work if there is a deadline to complete the work.

SPOTLIGHT ON ELECTRONICS

From building the ABC replica to developing a device for clocking the speed of mosquitos to repairing a malfunctioning power supply, the Electronics Technician Shop staff have been involved with a wide spectrum of projects to accommodate customer needs. The Tech Shop staff have a combined expertise of 60 plus years in the electronics industry with state-of-the-art software and tools shown below.



The Electronics Technician Shop stocks over 2000 repair parts, some of which are no longer readily available, for repair of older electronics equipment. If a customer can envision a project, our staff usually find a way to make it happen. Please contact John Hjortshoj at 294-4823 for information on how we can assist with repair and fabrication needs. Pictures of some recent projects follow.



Mosquito Flight Evaluator PC Interface



Typical Power Supply Repair.

MECHANICAL HIGHLIGHTS

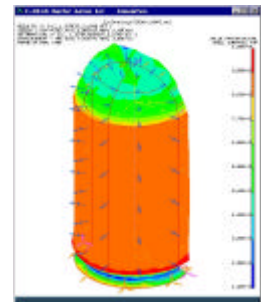
How much weight will a teeter totter bear before failure? What is the thickness of a tank head on a vessel designed to hold an internal pressure of 100 pounds per square inch? What are the most efficient fastening points for a power cable conduit designed to stand 200 feet tall?

These questions and more can be answered by using engineering skills and a widely accepted tool called finite element analysis (FEA). FEA is a computer-based method of simulating or analyzing the behavior of engineered structures or components. Although the method was developed in the 1950's, it has only become a viable engineering

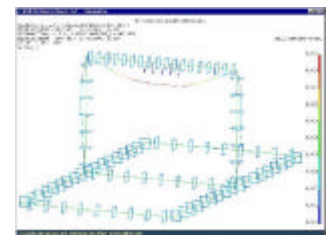
tool in the last 20 years, primarily due to advances in computer technology.

The chief advantage of FEA over traditional methods of engineering analysis is its ability to handle complex inputs: whether these are the geometry of a structure, material behavior, or the loading that a structure is subjected to. FEA can assist in the design of structures and components and help predict the behavior of a proposed design. It can also assist in failure analysis investigations, by providing engineering information (stress, deformation, heating) about a structure or component, which cannot be provided by traditional means.

Mechanical Design Engineers, Terry Herrman (294-7896) and Mike Harper (294-7892), have assisted several researchers with design concerns using FEA and are available to assist in your next project.



Gage Dome FEA



Teeter Totter Frame FEA